1. (Twice amended) A method for controlling a graphical element on a display through manipulation of an input device, the method comprising:

B1

measuring a plurality of components of a magnetic field related to an orientation of the input device, said plurality of components not being dependent to each other; and

controlling the graphical element on the basis of the plurality of components,

characterized in that the controlling step includes the sub-steps:

calculating a first signal X on the basis of at least two of the plurality of components, the first signal representing a translation movement of the graphical element in a first direction on the display; and

calculating a second signal Y on the basis of at least two of the plurality of components, at least one of the at least two of the plurality of components being different from the at least two components used for calculating the first signal, the second signal representing a translation movement of the graphical element in a second direction on the display.

3. (Twice amended) [A] The method as claimed in Claim 1,

B2

wherein the controlling step includes an initialization step for measuring reference values of the plurality of components with

respect to an orientation of the input device at an instant of executing the initialization step, and wherein the calculating [step calculates] sub-steps calculate the first [signal] and second signals on the basis of a difference between current values and the reference values of respective ones of the at least two of the plurality of components.

4. (Twice amended) [A] The method as claimed in Claim 3, wherein in said initialization step the measuring step measures three components of the magnetic field resulting in a measurement of the strength of the magnetic field, and wherein the initialization step is executed if the difference in strength of the magnetic field, between two successive executions of the measuring step, is larger than a predetermined threshold.

5. (Amended) [A] The method as claimed in Claim 1, wherein the magnetic field is generated by a permanent magnet or an electromagnet.

6. (Twice amended) An input device for controlling a graphical element on a display, the input device comprising:

a plurality of sensors for measuring a respective plurality of components of a magnetic field related to an

orientation of the input device, said plurality of components not being dependent to each other; and

a controller for controlling the graphical element on the basis of the plurality of components,

characterized in that the controller [includes] comprises:

first calculation means for calculating a first signal X on the basis of data from at least two of the plurality of sensors, the first signal representing a translation movement of the graphical element in a first direction on the display; and

second calculation means for calculating a second signal Y on the basis of data from at least two of the plurality of sensors, at least one of the at least two of the plurality of sensors being different from the at least two sensors used in calculating the first signal, the second signal representing a translation movement of the graphical element in a second direction on the display.

8. (Twice amended) [An] The input device as claimed in Claim 6, wherein said input device further comprises reset means for measuring reference data of the plurality of sensors with respect to an orientation of the input device, and wherein the first and second [calculating] calculation means [calculates] calculate the first [signal] and second signals on the basis of a difference between current data and the reference data of respective ones of the at least two of the plurality of sensors.

9. (Amended) [An] The input device as claimed in Claim 6, wherein at least one of the plurality of sensors is an MR (magnetoresistive) sensor.

10. (Twice amended) [An] The input device as claimed in Claim 6, wherein two of the plurality of sensors comprise an MR sensor, and wherein a third of the plurality of sensors comprises a Hall sensor, the three sensors being manufactured on a single substrate.

11. The method as claimed in claim 1, wherein said steps of calculating the first and second signals use the formulas:

$$X = \frac{V_{x0}V_y - V_{y0}V_x}{\sqrt{V_x^2 + V_y^2} \bullet \sqrt{V_{x0}^2 + V_{y0}^2}} \quad \text{and} \quad Y = \frac{V_{x0}V_z - V_{z0}V_x}{\sqrt{V_x^2 + V_z^2} \bullet \sqrt{V_{x0}^2 + V_{z0}^2}},$$

where V_{x0}, V_{y0} and V_{z0} are the measured components of the magnetic field.

12. The method as claimed in claim 11, wherein the controlling step includes an initialization step for measuring reference values of the plurality of components with respect to an orientation of the input device at an instant of executing the initialization step, and wherein the calculating sub-steps calculate the first and second signals on the basis of a difference between current values and the reference values of respective ones of the at least two of

the plurality of components, and wherein said steps of calculating the first and second signals use the formulas:

$$X = \frac{V_{x0}V_y - V_{y0}V_x}{\sqrt{V_x^2 + V_y^2} \bullet \sqrt{V_{x0}^2 + V_{y0}^2}} \quad \text{and} \quad Y = \frac{V_{x0}V_z - V_{z0}V_x}{\sqrt{V_x^2 + V_z^2} \bullet \sqrt{V_{x0}^2 + V_{z0}^2}},$$

where V_{x0}, V_{y0} and V_{z0} are the measured reference data.

13. The method as claimed in claim 12, wherein in said initialization step, the measuring step measures three components of the magnetic field resulting in a measurement of the strength of the magnetic field, and wherein the initialization step is executed if the difference in strength of the magnetic field, between two successive executions of the measuring step, is larger than a predetermined threshold.

14. The input device as claimed in claim 6, wherein said first and second calculation means use the formulas:

$$X = \left(\frac{V_y}{\sqrt{V_x^2 + V_y^2}} \right) \quad \text{and} \quad Y = \left(\frac{V_z}{\sqrt{V_x^2 + V_z^2}} \right),$$

where V_x, V_y and V_z are the measured components of the magnetic field.

15. The input device as claimed in claim 14, wherein said input device further comprises reset means for measuring reference data of the plurality of sensors with respect to an orientation of

the input device, and wherein the first and second calculation means calculate the first and second signals on the basis of a difference between current data and the reference data of respective ones of the at least two of the plurality of sensors, and wherein the first and second calculation means use the formulas:

$$X = \frac{V_{x0}V_y - V_{y0}V_x}{\sqrt{V_x^2 + V_y^2} \bullet \sqrt{V_{x0}^2 + V_{y0}^2}} \quad \text{and} \quad Y = \frac{V_{x0}V_z - V_{z0}V_x}{\sqrt{V_x^2 + V_z^2} \bullet \sqrt{V_{x0}^2 + V_{z0}^2}},$$

where V_{x0}, V_{y0} and V_{z0} are the measured reference data.